Amendments to the Claims

The listing of claims will replace all prior versions, and listings of claims in the application.

1. *(currently amended)* A pressure gauge, comprising:

a diaphragm positioned within a body having a rigid outer portion coupled to an inner wall of the body and a displaceable semi-elastic inner portion coupled to the rigid outer portion, the inner portion being ~~that is~~ sensitive to pressure changes in a range of approximately 0.1 to 0.5 inches of water~~, the inner portion~~ and which displaces in response to a pressure difference between first and second sides of the diaphragm ;

a sensor located proximate to the diaphragm and adapted to sense the displacement of the diaphragm inner portion; and

a monitor and control system coupled to the sensor and adapted to determine the pressure difference from the displacement of the diaphragm.

2. *(cancelled).*

3. *(previously presented)* The pressure gauge according to claim 1, further comprising an optically reflective coating on a first side of the diaphragm inner portion, wherein the sensor includes an optical transmitter and receiver optically aligned with the optically reflective coating.

4. *(original)* The pressure gauge according to claim 3, wherein the sensor comprises an interferometer.

5. *(original)* The pressure gauge according to claim 3, wherein the sensor comprises a white light interferometer.

6. *(previously presented)* The pressure gauge according to claim 3, wherein the sensor comprises:

a light transmitting module; and

a light sensing module adapted to directly receive a first light beam transmitted from the light transmitting module, and to receive a second light beam transmitted from the light transmitting module and reflected from the diaphragm;

wherein the monitor and control system calculates the displacement of the diaphragm from an interference pattern generated from the first and second lights.

7. *(previously presented)* The pressure gauge according to claim 6, wherein the light transmitting module comprises a transmitting fiber having an output coupled to a diffraction device that separates a source light into the first and second lights, wherein changes in the diaphragm displacement cause the interference pattern to include intensity modulated light, wherein the monitor and control system calculates the diaphragm displacement from the intensity modulated light.

8. *(previously presented)* The pressure gauge according to claim 6, wherein the light transmitting module comprises first and second transmitting fibers, the first transmitting fiber outputting the first light at a first wavelength, the second transmitting

fiber outputting the second light at a second wavelength, wherein the second wavelength is phase shifted relative to the first wavelength, wherein changes in the diaphragm displacement cause the interference pattern to change with a substantially constant speed, wherein the monitor and control system comprises a counter that decodes the diaphragm displacement from the substantially constant speed.

9. *(previously presented)* The pressure gauge according to claim 1, wherein the inner portion of the diaphragm includes a grounded metallic surface, wherein the sensor includes a capacitive sensing device positioned adjacent to the grounded metallic surface, and wherein the monitor and control system determines the displacement based on capacitive changes in the capacitive sensing device.

10. *(currently amended)* A proximity sensor for lithography, comprising:

a measurement leg having a measurement probe coupled thereto;

a reference leg having a reference probe coupled thereto, the reference probe located proximate to a reference surface;

a bridge portion coupled between the measurement leg and the reference leg; and

a diaphragm pressure sensor disposed within the bridge portion, wherein the diaphragm pressure sensor detects changes in pressure in the measurement leg caused by a change in distance between the measurement probe and a measurement surface as compared to a distance between the reference probe and the reference surface.

11. *(previously presented)* The proximity sensor according to claim 10, wherein the pressure sensor comprises:

a diaphragm having a rigid outer portion and a displaceable inner portion that displaces in response to a pressure difference between the measurement leg and the reference leg;

a sensor located proximate to the diaphragm and adapted to sense the displacement of the diaphragm inner portion; and

a monitor and control system coupled to the sensor and adapted to determine the displacement of the diaphragm and adapted to determine the pressure difference from the displacement.

12. *(currently amended)* A proximity sensor for lithography, comprising:

a measurement leg having a measurement probe coupled thereto, the measurement probe located proximate to a measurement surface;

a reference pressure;

a bridge portion coupled between the measurement leg and the reference pressure;

a diaphragm disposed within the bridge portion, the diaphragm including a rigid outer portion and a displaceable inner portion that displaces in response to a pressure difference between the measurement leg and the reference pressure caused by a change in distance between the measurement probe and the measurement surface;

a sensor located proximate to the diaphragm and adapted to sense the displacement of the diaphragm inner portion; and

a monitor and control system coupled to the sensor and adapted to determine the displacement of the diaphragm and to determine the pressure difference from the displacement.

13. *(currently amended)* A lithography topography mapping device, comprising:

a measurement leg having a measurement probe coupled thereto, the measurement probe located proximate to a measurement surface;

a reference pressure;

a bridge portion coupled between the measurement leg and the reference pressure;

a diaphragm disposed within the bridge portion, the diaphragm including a rigid outer portion and a displaceable inner portion that displaces in response to a pressure difference between the measurement leg and the reference pressure caused by a change in distance between the measurement probe and the measurement surface;

a sensor located proximate to the diaphragm and adapted to sense the displacement of the diaphragm inner portion; and

a monitor and control system coupled to the sensor and adapted to determine the displacement of the diaphragm and to determine the pressure difference from the displacement.

14. *(currently amended)* The pressure gauge according to claim 1, wherein the semi-elastic inner portion comprises ~~kapton~~ a polyimide film.

15. *(currently amended)* The pressure gauge according to claim 1, wherein the semi-elastic inner portion comprises ~~mylar~~ a thin polyester film.

16. *(previously presented)* The pressure gauge according to claim 1, wherein the semi-elastic inner portion comprises rubber.